BABYLON LANDFILL
Babylon (T), Suffolk County, New York

This 82 acre town landfill received some industrial waste. Goundwater contamination of wells is documented for vinyl Chloride,TCE and organic halogens. Several private wells were closed. The upper glacial aquifer is contaminated and hydraulically connected to the magothy aquifer. Some nearby streams may be affected by leachate seeps. The food chain may be affected. A passive methane collection system is used. The incinerators were closed in 1976.

NPL

Facility name: Babylon Landfill

Location: Edison Ave, Babylon NY

EPA Region: II EPA # NYD

Person(s) in charge of the facility: Walter Lindley, Deputy Commissioner

Name of Reviewer: McCauley Date: 12/13/83

General description of the facility:

(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

See NUS Report

Scores: S_M = [redacted] (S_{gw} = 27.82 S_{sw} = 47.89 S_a = 4.92)

S_{FE} =

S_{DC} =

FIGURE 1
HRS COVER SHEET

Ground Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0) 45	1	0	45	3.1
If observed release is given a score of 45, proceed to line 4. If observed release is given a score of 0, proceed to line 2.					
2 Route Characteristics					3.2
Depth to Aquifer of Concern	0 (1) 2 3	2	4	6	
Net Precipitation	0 1 (2) 3	1	3	3	
Permeability of the Unsaturated Zone	0 1 (2) 3	1	3	3	
Physical State	0 1 (2) 3	1	3	3	
Total Route Characteristics Score			13	15	
3 Containment	0 1 (2) 3	1	3	3	3.3
4 Waste Characteristics					3.4
Toxicity/Persistence	0 3 6 9 12 (15) 18	1	15	18	
Hazardous Waste Quantity	(0) 1 2 3 4 5 6 7 8	1	1	8	
Total Waste Characteristics Score			16	26	
5 Targets					3.5
Ground Water Use	0 1 2 (3)	3	9	9	
Distance to Nearest Well/Population Served	0 4 6 8 10 12 16 18 20 24 30 32 (35) 40	1	35	40	
Total Targets Score			44	49	
6 If line 1 is 45, multiply 1 x 3 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			27456	57,330	
7 Divide line 6 by 57,330 and multiply by 100		S_{gw} =	47.89		

FIGURE 2
GROUND WATER ROUTE WORK SHEET

Surface Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0) 45	1	0	45	4.1
If observed release is given a value of 45, proceed to line 3. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	0 1 (2) 3	1	2	3	
1-yr. 24-hr. Rainfall	0 1 (2) 3	1	2	3	
Distance to Nearest Surface Water	0 1 (2) 3	2	4	6	
Physical State	0 1 2 (3)	1	3	3	
Total Route Characteristics Score			11	15	
3 Containment	0 1 2 (3)	1	3	3	4.3
4 Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 12 (15) 18	1	15	18	
Hazardous Waste Quantity	0 (1) 2 3 4 5 6 7 8	1	1	8	
Total Waste Characteristics Score			16	26	
5 Targets					4.5
Surface Water Use	0 1 (2) 3	3	6	9	
Distance to a Sensitive Environment	(0) 1 2 3	2	0	6	
Population Served/Distance to Water Intake Downstream	(0) 4 6 8 10 12 16 18 20 24 30 32 35 40	1	0	40	
Total Targets Score			6	55	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			3168	64,350	
7 Divide line 6 by 64,350 and multiply by 100			S_{SW} = 4.92		

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

Air Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
[1] Observed Release	0 45	1		45	5.1
Date and Location:					
Sampling Protocol:					
If line [1] is 0, the S_a = 0. Enter on line [5]. If line [1] is 45, then proceed to line [2].					
[2] Waste Characteristics					5.2
Reactivity and Incompatibility	0 1 2 3	1		3	
Toxicity	0 1 2 3	3		9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score			20	
[3] Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 2 3	1		3	
	Total Targets Score			39	
[4] Multiply [1] x [2] x [3]				35,100	
[5] Divide line [4] by 35,100 and multiply by 100		S_a =			

FIGURE 9
AIR ROUTE WORK SHEET

	S	S^2
Groundwater Route Score (S_{gw})	47.89	2293.45
Surface Water Route Score (S_{sw})	4.92	24.24
Air Route Score (S_a)		
$S_{gw}^2 + S_{sw}^2 + S_a^2$		2317.69
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		48.14
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} \,/\, 1.73 = S_M =$		27.82

FIGURE 10
WORKSHEET FOR COMPUTING S_M

Fire and Explosion Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Containment	1 3	1		3	7.1
2 Waste Characteristics					7.2
Direct Evidence	0 3	1		3	
Ignitability	0 1 2 3	1		3	
Reactivity	0 1 2 3	1		3	
Incompatibility	0 1 2 3	1		3	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 3 4 5	1		5	
Distance to Nearest Building	0 1 2 3	1		3	
Distance to Sensitive Environment	0 1 2 3	1		3	
Land Use	0 1 2 3	1		3	
Population Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Total Targets Score				24	
4 Multiply 1 x 2 x 3				1,440	
5 Divide line 4 by 1,440 and multiply by 100		S_{FE} =			

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

Direct Contact Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Incident	0 45	1		45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	0 1 2 3	1		3	8.2
3 Containment	0 15	1		15	8.3
4 Waste Characteristics Toxicity	0 1 2 3	5		15	8.4
5 Targets					8.5
Population Within a 1-Mile Radius	0 1 2 3 4 5	4		20	
Distance to a Critical Habitat	0 1 2 3	4		12	
Total Targets Score				32	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5				21,600	
7 Divide line 6 by 21,600 and multiply by 100	S_{DC} =				

FIGURE 12
DIRECT CONTACT WORK SHEET

June 28, 1982

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

INSTRUCTIONS: The purpose of these records is to provide a convenient way to prepare an auditable record of the data and documentation used to apply the Hazard Ranking System to a given facility. As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference that will make the document used for a given data point easier to find. Include the location of the document and consider appending a copy of the relevant page(s) for ease in review.

FACILITY NAME: Babylon Landfill

LOCATION: Edison Ave., Babylon, N.Y.

REFERENCES CONTAINED IN NUS SITE REPORT 4/13/83 - 2070-13

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

CHLORIDES
ORGANIC HALOGENS

(REF. NUS. SITE INSP. FORM 2070-13 4/13/83)

N/A

ADDTL. INFO. ONLY.

Rationale for attributing the contaminants to the facility:

N/A

GROUNDWATER MONITORING WELLS IN AREA HAVE BEEN SAMPLED. PRIVATE WELLS HAVE BEEN SAMPLED AND FOUND TO BE CONTAMINATED. SOME HAVE BEEN CLOSED.

* * *

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifers(s) of concern:

UPPER GLACIAL UNCONSOLIDATED DEPOSITS - SAND AND GRAVEL AND MAGOTHY AQUIFER (AQUIFERS HYDRAULICALLY CONNECTED)

(REF. McCLYMONDS & FRANKS GEOLOGICAL SURV. PROF. PAPER 627 E & F)

Depth(s) from the ground surface to the highest seasonal level of the saturated zone [water table(s)] of the aquifer of concern:

± 115 FT. - MAGOTHY AQUIFER

30 FT - UPPER GLACIAL AQUIFER

Depth from the ground surface to the lowest point of waste disposal/ storage:

15 FT

SITE HAS BEEN ACTIVE FOR 44 YEARS.

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

53 IN.

Mean annual lake or seasonal evaporation (list months for seasonal):

30 IN.

Net precipitation (subtract the above figures):

23 IN.

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

SAND AND GRAVEL

Permeability associated with soil type:

GREATER THAN 10^{-3} cm/sec.

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

SOLID
SLUDGE
LIQUID

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

LANDFILL - NO LINER, LITTLE COVER
LAGOON
LEACHATE COLLECTION

Method with highest score:

LANDFILL

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

	TOX	PER
VINYL CHLORIDES	3	2
TCE	2	2
[redacted]		

(REF. - BABYLON LANDFILL MONITORING PROGRAM 1981-1982 GERAGHTY & MILLER, INC.)

Compound with highest score:

	TOX	PER
VINYL CHLORIDE	3	2

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

UNABLE TO DETERMINE HAZARDOUS WASTE QUANTITY

Basis of estimating and/or computing waste quantity:

82 ACRES FILLED ~ 15 FT ABOVE GRADE

$$\text{TOTAL WASTE} = 82 \text{ ACRES} \times \frac{43560 \text{ FT}^2}{\text{ACRE}} \times 15 \text{ FT} \times \frac{1 \text{ yd}^3}{27 \text{ FT}^3} = 1,984,400 \text{ yd}^3$$

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5 TARGETS

Ground Water Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

Community water supply systems

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:

1. North and south of site
2. Ground water monitoring network which utilizes approximately 30 wells is located within vicinity of site.

Distance to above well or building:

± 1 mile

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

84,000 total

Suffolk county water authority (Ref: N.Y. State water supply atlas N.Y. State Dept. of Health 1982.

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

N/A

Total population served by ground water within a 3-mile radius:

84,000

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

Rationale for attributing the contaminants to the facility:

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2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

0-5%

Name/description of nearest downslope surface water:

SAYVILLE CREEK
AMITYVILLE CREEK
GREAT SOUTH BAY

Average slope of terrain between facility and above-cited surface water body in percent:

0-5%

Is the facility located either totally or partially in surface water?

NO

Is the facility completely surrounded by areas of higher elevation?

NO

1-Year 24-Hour Rainfall in Inches

2.8 in.

Distance to Nearest Downslope Surface Water

1 mile

Physical State of Waste

Solid
Sludge
Liquid

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

LANDFILL - NO LINER, NO OR LITTLE COVER
LAGOON
LEACHATE COLLECTION

Method with highest score:

LANDFILL

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated	TOX	PER
VINYL CHLORIDES	3	2
TCE	2	2

Compound with highest score:	TOX	PER
VINYL CHLORIDES	3	2

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

UNABLE TO DETERMINE HAZARDOUS WASTE QUANTITY

1,984,000 yd^3 = TOTAL WASTE

Basis of estimating and/or computing waste quantity:

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5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

RECREATION
COMMERCIAL
INDUSTRIAL

Is there tidal influence?

NO

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

[redacted] NONE

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

[redacted] NONE

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

NONE

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

NONE

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

NONE

Total population served:

—

Name/description of nearest of above water bodies:

SAYAPOGUE CREEK
AMITYVILLE CREEK
GREAT SOUTH BAY

Distance to above-cited intakes, measured in stream miles.

SAYAPOGUE CREEK - 1 mi.
AMITYVILLE CREEK - 1.5 mi.
GREAT SOUTH BAY - 2 mi.

AIR ROUTE

1 OBSERVED RELEASE

Contaminants detected:

Date and location of detection of contaminants

Methods used to detect the contaminants:

Rationale for attributing the contaminants to the site:

* * *

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

Most incompatible pair of compounds:

Toxicity

Most toxic compound:

Hazardous Waste Quantity

Total quantity of hazardous waste:

Basis of estimating and/or computing waste quantity:

* * *

3 TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi 0 to 1 mi 0 to 1/2 mi 0 to 1/4 mi

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

Distance to critical habitat of an endangered species, if 1 mile or less:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?